The EpiNotes Newsletter

NC DEPARTMENT OF HEALTH AND HUMAN SERVICES
Division of Public Health

2018; Vol. 18 No. 1

Cover: Cape Fear River (Courtesy of NC DEQ)

Guidance for Epi Teams in Local Health Departments

Aaron Fleischauer, PhD; Jess Rinsky, PhD; Shanae Godley, MPH; Vanessa Greene, RN, MS

Since 2002, local health departments in North Carolina have used Epi Teams to organize their responses to communicable disease outbreaks, environmental health hazards and other public health emergencies.

The purpose of this document is to provide updated guidance for local health departments on maintaining an effective and capable Epi Team.

Purpose of Epi Teams

A well-established and trained Epi Team strengthens the capacity of the local public health agency and community stakeholders to respond to all-hazard events. The responsibilities of these teams can include:

- Providing situational awareness to public health leaders;
- Conducting surveillance and epidemiologic investigations;
- Recommending appropriate public health interventions for disease and exposure control; and
- Educating the public about disease and exposure prevention and control measures.

Epi Team Roles

A diverse multidisciplinary composition is crucial to the success of an Epi Team. Epi Teams require expertise in the following areas: leadership, epidemiology, nursing/medicine, environmental health, preparedness planning, public information, health education/community health, laboratory, administrative support, and information technology (*see pages 4-5 for example staff roles*). Health department staff with the appropriate skills and training to fill these roles should be identified prior to an investigation. Depending on the response, staff with other areas of expertise may also be needed.

During large responses, outside assistance may be needed from community resources such as the local hospital, regional state resources, and the NC Division of Public Health. Epi Teams should develop plans and mechanisms for ensuring sufficient capacity for long-term responses. In rare circumstances, mechanisms such as inter-county agreements and EMAC (Emergency Management Assistance Compact) can support surge capacity for Epi Teams.

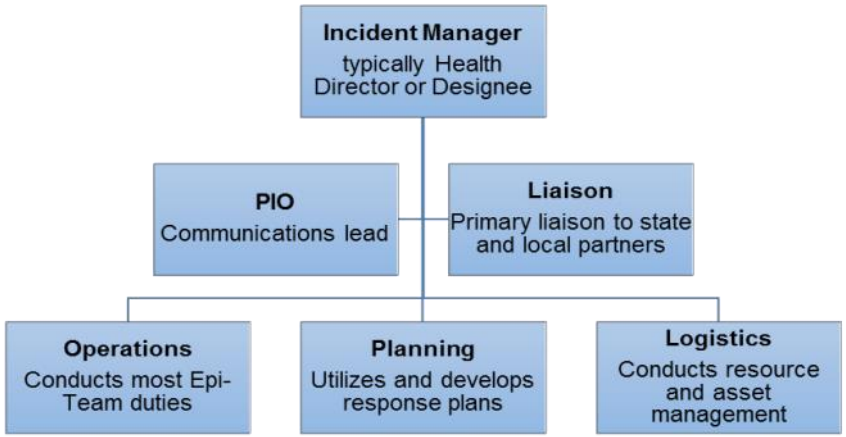
Routine Epi Team Activities

Epi Teams should meet regularly to prepare for conducting response activities. These meetings help to improve and encourage regular communication among team members. Each Epi Team should decide how often to meet, but at a minimum should meet quarterly. Suggested activities for routine meetings include:

- Review current epidemiology topics/issues/alerts from sources such as MMWR, EpiNotes, CD Branch Program Alerts, and the Health Alert Network. Current public health threats such as emerging infectious diseases, local outbreaks, extreme weather events, and potential environmental hazards should be discussed. Additional data sources can include a review disease surveillance data sources such as:
    - County-level communicable disease reports (NC EDSS);
    - Weekly Influenza reports;
    - Public Health Epidemiologists (PHE) reports;
    - Environmental health complaints, advisories and reports;
    - Syndromic surveillance reports (NC DETECT).
- Identify the most likely public health threats from surveillance data, determine priorities for action, and develop plans for response.
- Discuss team member roles and responsibilities during these response scenarios. Identify areas of expertise that might be weak or

missing and how to request assistance in those areas if needed.
- Conduct training and exercises for team members.
- Strengthen relationships with key agencies/community partners to enhance community response to public health threats.
- Analyze local data around access and functional needs populations to prioritize and develop response efforts.

Epi Teams and Incident Command (ICS)

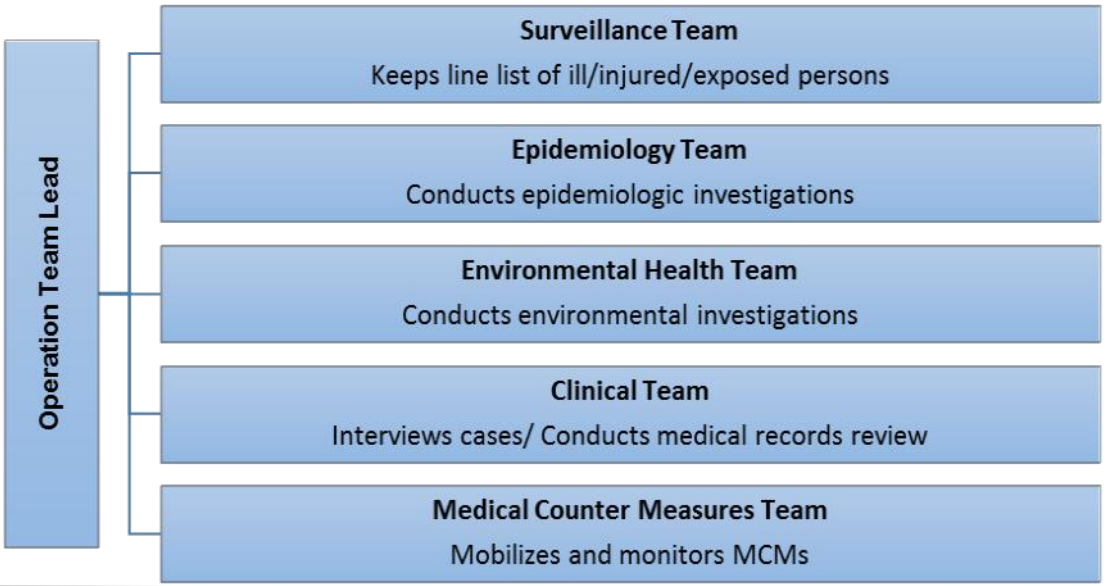


When activated, Epi Teams should utilize the National Incident Management System (NIMS) Incident Command Structure (*above*). NIMS-ICS provides a structure within which Epi Teams can manage projects or events efficiently. To integrate NIMS-ICS within your Epi Team, the following suggestions may be helpful:

- Complete your NIMS-ICS training as directed by the North Carolina Public Health Workforce NIMS Training Plan.
- Utilize NIMS-ICS organizational structure for management of routine events of more than 1-2 days of duration or a long-term health department project to familiarize your staff with the system.
- Preplan assignments for incident commanders, section heads and other positions for various scenarios.
- Utilize Homeland Security Exercise and Evaluation Program (HSEEP) guidance for development of after-action reports and collection of lessons learned following event: https://www.fema.gov/media-library/assets/documents/32326.

Most Epi Team duties are coordinated within the **Operations Team** and can include the following activities (this is an example, ICS can be scaled to the situation):

- **Surveillance:** case finding, contact tracing and line listing.
- **Epidemiologic investigations:** field investigations, analytic studies, control measures, post-exposure prophylaxis, isolation and quarantine.
- **Environmental health investigations:** site visits and inspections, trace-backs, hazard and risk assessment, mitigation.
- **Clinical and Laboratory:** medical records review, specimen collection and transport, laboratory diagnostics.
- **Medical Counter measures:** plans, mobilizes and monitors mass dispensing medical counter measures.



Examples of the key roles of an Epi Team, health department staff positions fulfilling each role, and respective activities performed during public health responses

Member	Activity
Health Director	• Appoints or serves as incident manager/incident commander • Ensures notification of the event to state authorities in accordance with statutory requirements
Epidemiologist/CD Nurse/ Preparedness Coordinator	• Tracks surveillance data for disease trends • Establishes baseline disease information • Formulates case definitions • Provides training to staff on interviewing skills for case finding and follow-up investigations • Maintains a line listing of cases • Provides daily status reports about case ascertainment and counts • Reviews case report /investigation forms to ensure completeness of data collection
Public Health Nurse/CD Nurse	• Educates cases and contacts of cases regarding compliance and prevention procedures • Collects clinical specimens • Follows up with patients to ensure treatment or completion of prophylaxis • Monitors contacts of cases for disease development and/ or prophylaxis • Conducts home visits as needed • Contacts and/or visits providers to reinforce reporting and control recommendations • Sets up vaccination clinics as necessary or accelerates vaccination scheduling • Orders additional vaccine/antibiotics/ Immunoglobulin as needed •
Environmental Health Specialist and/or Environmental Epidemiologist/ Toxicologist	• Conducts risk/hazard assessments • Tracks and responds to food and private water complaints • Performs field investigation to determine possible contributing risk factors to an event • Collects environmental samples • Implements control measures (e.g., boil water advisory) • Works with the local, state and federal agencies to perform trace-backs of implicated food items or ingredients • Provides daily updates to team members on inspection findings and status of control measures • Provides guidance on food safety regulations and engineering

Member	Activity
Preparedness Coordinator	• Provides information on existing all hazard, SNS1, Pandemic and other planning and preparations • Serves as NIMS/ICS2 resource • Coordinate the completion of and maintain HSEEP3 and NIMS/ICS compliant documentation such as Incident Action Plans (IAP), After Action Reports (AARs), and Improvement Plans (IPs)
Public Information Officer and/or Health Educator	• Reviews provider and public alerts, fact sheets and reporting reminders • Ensures the availability of appropriate educational tools and materials, including developing them when necessary • Prepares/reviews press releases • Responds and provides public information to media inquiries • Collaborates with jurisdictional joint information centers to provide a consistent flow of information across county agencies
Health Educator/Community Health Staff	• Assists in assessing the health education needs of the community and identifies appropriate methods of communication • Develops provider and public alerts, fact sheets and reporting reminders • Ensures the availability of appropriate educational tools and materials, including developing them when necessary • Works on building community resiliency through stakeholder engagement
Laboratorian	• Provides information on proper collection of clinical specimens • Coordinates submission of specimens to the State Laboratory of Public Health
Administrative Staff	• Coordinates meetings and distributes meeting agendas • Records minutes and keeps records of meetings • Tracks staff expenses (overtime, travel reimbursement etc.) • Assures after-hours building and cellular phone access
Information Technology (IT) Specialist	• Provides support for IT problems that may arise • Assists in data entry • Equips team with necessary equipment including computers, phones, copiers, etc. • Assures cyber security measures

[1]Strategic National Stockpile (SNS); [2]National Incident Management System/Incident Command System (NIMS/ICS); [3]Homeland Security Exercise and Evaluation Program (HSEEP)

Public Health Response to Historical Asbestos Contamination of Residential Yards in Davidson, NC

Beth Dittman, MS; Jeff Dellinger, BS; Emily Harple, MPH; Rick Langley, MD; Jess Rinsky, PhD and Mina Shehee, PhD

In 1890, the Davidson Mill Asbestos Site in Mecklenburg County began operation as a cotton mill and warehouse. During the 1930s–1960s, the Carolina Asbestos Company manufactured asbestos shingles at the site and deposited waste from plant operations at the back of the property, a common practice before modern environmental laws. In 1984, a neighbor noticed her children were covered in a "whitish material" after playing on the property; she filed a complaint with the Mecklenburg County Health Department (MCHD), Environmental Health Division. The MCHD and the North Carolina Division of Public Health (DPH) determined that the property was contaminated with asbestos and ordered the property owner to take action to prevent further human exposure; exposed asbestos was covered with two feet of red clay and grass was planted and maintained to seal buried material.

In 2015, a developer made an agreement with the NC Department of Environmental Quality (DEQ) Brownfields Program to redevelop the site; the Brownfields Program facilitates redevelopment of property by alleviating liability for prospective developers of sites with real or perceived environmental contamination. During a September 2016 public meeting to present redevelopment plans to demolish current buildings and construct an apartment building, neighbors expressed the following concerns:

1) redevelopment of the property could release asbestos into the air causing a public health hazard to the community; and,
2) surrounding yards had not been assessed and might contain asbestos.

Further investigation revealed that asbestos waste may have been hauled to off-site areas and deposited throughout the town prior to the on-site clay capping in 1984. If soil contaminated with asbestos is disturbed, even during lawn maintenance or gardening, asbestos fibers could be released into the air and inhaled. Inhaled asbestos fibers target the respiratory system, and can result in adverse health effects such as lung cancer, mesothelioma, and asbestosis, conditions that can take decades to appear. The NC DPH Occupational and Environmental Epidemiology Branch (OEEB) worked with MCHD and the town of Davidson to respond to concerns. Response goals were to identify community health concerns, document asbestosis-related disease burden, provide health education, and provide information about local resources to address concerns.

To document asbestos-related disease burden, OEEB worked with the NC State Center for Health Statistics and the NC Central Cancer Registry to examine mesothelioma (1990-2013) and lung cancer incidence rates (1995-2015), asbestosis hospitalizations (1995-2015) and emergency department visits (2005-2015) for current residents of Mecklenburg County; no detectable increases in lung cancer and mesothelioma rates were observed among Mecklenburg County residents, and rates were similar to state-wide rates during the period. Similarly, no detectible increases in hospitalizations or ED visits for asbestosis were observed in Mecklenburg County compared to surrounding counties. Two major limitations to this portion of the investigation were: 1) data on these outcomes became available in the 1990s; town residents who developed these diseases prior to that time are not captured; and, 2) the long latency period of these diseases (up to 30 years) makes it possible that town residents who were exposed during the mill's operations moved away prior to diagnosis.

DEQ requested that the US Environmental Protection Agency (EPA) perform a Removal Site Evaluation in the residential neighborhood surrounding the site. During the initial EPA site visit in November 2016, EPA, NC DEQ, and NC DPH staff observed asbestos washing out from the onsite landfill into a street and storm drain (Figure 1). Upon further inspection, several erosion spots on the covered-embankment were observed. The current property owner

hired asbestos contractors to remove the asbestos from the street and drain, and designed and implemented an interim remedial action to stabilize the eroding embankment to prevent further release of asbestos from the site (Figure 2).

EPA spoke with residents to gain access to their yards to sample for possible asbestos in the soil. Sampling is complete, and 93 properties were sampled . Asbestos was identified as having visible asbestos in the yard, or quantifiable levels of asbestos fibers in the soil. Twenty-three of these asbestos-containing properties were remediated by EPA, which required residents to temporarily relocate while EPA dug out one foot of soil and backfilled the lots with clean soil. Specifically, the project consisted of removing over 6,000 tons of asbestos contaminated soil at a cost of over $ 1.7 million dollars. This remedial action lessens the chance that asbestos fibers will be released into the air, where they can be inhaled and present a health hazard.

Figure 2. Slope stabilization and implementation of interim remedial strategy to prevent further erosion from the on-site asbestos landfill.

Figure 1. White asbestos material washed out from the onsite landfill into a street and storm drain.

To date, there have been five public meetings with the community: three hosted by EPA, one hosted by NC DEQ, and one hosted by NC DPH. The NC DPH -hosted public meeting was requested by community members, and focused on health effects of asbestos exposure, medical tests that can be done, and community resources available for those who may be uninsured or underinsured. NC DPH developed two factsheets for residents of the area focusing on health effects of asbestos exposure and yardwork recommendations for residential properties near the Davidson Mill Asbestos Site.

Resources:

More information on the site can be found at the following websites:

CDC Fact Sheet on Asbestos, available at: http://www.ci.davidson.nc.us/documentcenter/view/7759.

NC DPH HACE program fact sheet on Davidson Mills, available at: http://www.ci.davidson.nc.us/documentcenter/view/7760.

Development of a Health Goal for an Emerging PFAS in Drinking Water, North Carolina, 2017

Beth Dittman, MS; Jamie Pritchett, MTox; Kennedy Holt, MSPH; Mina Shehee, PhD

The North Carolina Department of Health and Human Services (DHHS) was notified in June of 2017 that academic researchers had identified several emerging per- and polyfluoroalkyl substances (PFAS) in the municipal drinking water sourced by the lower Cape Fear River [1]. One of these compounds was identified as Perfluoro-2-propoxypropanoic acid (tradename GenX), which was registered as a replacement chemical for perfluorooctanoic acid (PFOA). The source of GenX in the Cape Fear River was identified as a chemical manufacturer ~70 miles upstream from the municipal water intakes. The researchers had identified a mean GenX concentration of 631 ng/L in raw water from a water treatment plant and determined that traditional water treatment methods were not effectively removing GenX from the water [1]. After consultation with the chemical manufacturer, N.C. officials learned that GenX in the Cape Fear River was a byproduct from a vinyl ether manufacturing process that had been in place since 1980. DHHS was consulted to determine if there was a risk to public health.

Methods: DHHS searched for available toxicological and health information for GenX. The European Chemical Agency (ECHA) had publicly available summaries of all toxicological studies submitted by the company for registration [2]; and Beekman et al. provided an analysis of this data [3]. N.C. DHHS focused on the repeat oral dose studies in rodents. This exposure scenario is most applicable to the potential long-term exposure scenario from drinking water. DHHS also consulted with toxicologists and risk assessors at U.S. EPA, NIEHS, and ATSDR to identify applicable toxicology information and risk assessment procedures.

Results The GenX registration dossier listed seven repeat oral dose studies in rodents of 28 days or longer, including one 2-year chronic assay in rats. During the initial response, N.C. DHHS used the No Observed Adverse Effect Level (NOAEL) from the 2-year study as the point of departure. After further review of the other studies and conversations with experts at EPA, a revised assessment was performed using the NOAEL from a 28-day study in mice as the point of departure. N.C. DHHS used standard default uncertainty factors to calculate a reference dose for GenX. To remain protective of vulnerable populations, N.C. DHHS used bottle-fed infant exposure factors (intake rate and body weight) as well as a 20% relative source contribution to calculate a provisional health goal for GenX in drinking water of 140 ng/L. This level is being used to screen both municipal and private well drinking water samples taken around and downstream from the facility.

Conclusions Health and toxicological data on GenX and other emerging PFAS is still scarce, but N.C. DHHS used available information and standard risk assessment procedures to set a provisional health goal for GenX in drinking water. There are still significant knowledge gaps that need to be filled to better refine risk assessment for legacy and emerging PFAS.

References

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[3] Beekman M, Zweers P, Muller A, de Vries W, Janssen P, Zeilmaker M. 2016. RIVM Report 2016-0174: Evaluation of substances used in the GenX technology by Chemours, Dordrecht. Available at: http://www.rivm.nl/en/Documents_and_publications/Scientific/Reports/2016/december/Evaluation_of_substances_used_in_the_GenX_technology_by_Chemours_Dordrecht.

Influenza-Associated Death Surveillance — North Carolina, 2014–2016

Carolyn Herzig, PhD

Background: Approximately 12,000–56,000 influenza-associated deaths occur annually in the United States. In North Carolina (NC), physicians are required to report all influenza-associated deaths confirmed by laboratory or rapid diagnostic testing. The validity and representativeness of influenza-associated death surveillance in NC is unknown. Therefore, we assessed whether influenza-associated deaths reported to the NC Electronic Disease Surveillance System (NCEDSS) differ from those in other datasets.

Methods: During 2014–2016, NCEDSS influenza-associated deaths, hospital discharge (HD) deaths with any influenza diagnosis, and death certificate (DC) records with influenza as the primary cause of death were probabilistically linked by name, sex, and birth year using LinkPlus. Agreement among datasets was determined and demographic characteristics were compared using chi-square and t tests.

Results: During 2014–2016, a total of 1,477 potential influenza-associated deaths were identified; 377 by NCEDSS, 601 by HD, and 499 by DC. After linking, 855 unique deaths were identified; an average of 285 deaths annually. All datasets were concordant for 173 (20%) deaths. Overall, 85% of NCEDSS cases (n = 322) matched HD or DC cases. No statistically significant differences among datasets were observed for sex, ethnicity, or metropolitan versus rural residence. Mean ages were similar in NCEDSS (68 years) and HD (69 years) cases; however, DC cases were older (72 years; P <.01). Compared with NCEDSS (75% white) and HD (76% white), cases in DC (83% white) were more likely to be white (P <.01).

Conclusions: Because fewer deaths were captured in NCEDSS, compared with HD and DC, NC surveillance may underestimate the true burden of influenza-associated death. However, 85% of cases in NCEDSS were matched to another data source suggesting that predictive value positive is high. Additionally, NCEDSS cases were similar by sex, ethnicity and rurality suggesting they are representative of all influenza-associated deaths in NC.

Novel Carbapenemase-Producing Carbapenem-Resistant Enterobacteriaceae Transmission in a Long-Term Care Facility - North Carolina, 2017

Heather Dubendris, MSPH; Jennifer MacFarquhar, RN, MPH

BACKGROUND: In April 2017, the North Carolina Division of Public Health (NC DPH) was notified by a local health department (LHD) of a cluster of infections of extended-spectrum β-lactamase (ESBL)-producing organisms and carbapenem-resistant Enterobacteriaceae (CRE) among long-term care facility (LTCF) and community residents in County A. In consultation with the Centers for Disease Control and Prevention (CDC), NC DPH coordinated an investigation to: enhance surveillance; assess infection prevention practices at three impacted LTCFs; and prevent further transmission.

METHODS: We used local hospital surveillance data to establish baseline prevalence. We conducted site visits to all LTCFs in County A to assess infection control practices and opportunities for disease transmission. NC DPH and CDC performed additional testing on one available CRE isolate to characterize the resistance mechanism. We conducted point prevalence surveys at one LTCF in June and August to identify individuals colonized with Carbapenemase producing CRE (CP CRE).

RESULTS: Between October 22, 2016 and September 30, 2017, we identified 77 cases of ESBL and/or CRE in County A, twice the average monthly number of cases observed in the county in the preceding 21 months. Thirty-six (47%) infections were identified in residents of three LTCFs (N=198). An additional 9 cases (12%) had a history of exposure to other LTCFs . Among the 77 cases, we identified four cases of CRE infections (5%); three were LTCF residents. One CRE isolate was identified through PCR as producing Imipenemase (IMP) Metallo-β-lactamase Carbapenemase. The LTCF case had numerous recent healthcare exposures, but no recent travel outside of NC.

Site visits to the LTCF with the IMP case (LTCF 1) revealed numerous lapses in infection prevention and opportunities for transmission. Caregiver staff lacked understanding of multidrug resistant organisms and measures to prevent transmission. Initiation of contact precautions was delayed and not adequately maintained. Hand hygiene and personal protective equipment was applied inconsistently. Annual staff competency checks were not conducted. Two sequential point prevalence surveys of LTCF 1 residents identified three additional residents colonized with IMP producing CRE. These three residents had no recent travel outside of NC or healthcare exposures outside of LTCF 1. All four cases of IMP producing CRE were geographically clustered within LTCF 1.

CONCLUSIONS: We detected the first introduction and subsequent transmission of a resistance mechanism in a LTCF in NC. As a result, there is an unmet need for infection prevention education in LTCFs to ensure appropriate identification, containment and prevention of emerging CRE.

Identifying High-Risk Populations and Settings for Targeted Hepatitis C Virus (HCV) Testing – North Carolina, 2016

Katie Steider, MPH; Aaron Fleischauer, PhD

BACKGROUND: Prevalence of chronic HCV in NC is unknown, but reported cases of acute HCV increased 276% during 2012-2016. In 2016, free HCV testing for high-risk persons was available from local health departments (LHDs), jails, and community organizations using HIV prevention funding. Data from all HCV tests conducted at the State Laboratory of Public Health (SLPH) during 2016 were analyzed to characterize the HCV epidemic in NC and identify populations for targeted screening.

METHODS: Data was restricted to HCV tests for NC residents with a sample collection date during January 1-December 31, 2016. A positive HCV test result was a reactive HCV antibody test; or non-reactive HCV antibody test with HCV RNA detected. Prevalence (P) of HCV positivity was calculated overall and by demographics and behavioral risk factors; prevalence ratios (PR) and 95% confidence intervals (CI) were estimated using log binomial models.

RESULTS: SLPH conducted 16,818 HCV tests for NC residents during 2016; 1,445 (8.6%) were positive. Prevalence of HCV was greater among males than females (PR: 1.3; 95% CI: 1.2, 1.5) and among Native Americans (PR: 6.7; 95% CI: 4.3, 10.6) and white persons (PR: 6.0; 95% CI: 4.4, 8.2) compared with Hispanics (P: 2.3%). Prevalence among persons who reported two or more risk factors (i.e., baby boomer [BB] born during 1945-1965, injection drug use [IDU], HIV positive) was significantly greater than those who reported no risk factors (PR: 8.3; 95% CI: 7.0, 9.7). Prevalence among BB (P: 14.5%) was nearly twice that of non-BB (PR: 1.9; 95% CI: 1.7, 2.1). Prevalence among persons who reported current IDU (P: 33.5%) was almost six times that of those who did not report current IDU (PR: 5.9; 95% CI: 5.3, 6.5). IDU was associated with greater HCV prevalence among BB (P: 31.7%; PR: 2.3; 95% CI: 1.7, 3.0) and non-BB (P: 33.7%; PR: 7.8; 95% CI: 7.0, 8.7). HCV prevalence was greater among persons tested at drug treatment centers (P: 19.9%; PR: 5.7; 95% CI: 4.7, 6.8) and jails (P: 14.3%; PR: 4.1; 95% CI: 3.3, 5.0) compared to those tested in LHD STD clinics (P: 3.5%).

CONCLUSIONS: The majority of HCV positive tests with reported risk factors were for non-BB who reported IDU (41.7%) and BB who did not report IDU (16.9%). Testing of persons with at least one risk factor (i.e., BB, IDU) is critical for identifying persons for treatment and impacting the current HCV epidemic.

Shedding light on infection prevention breaches in non-traditional settings: investigations of a dental clinic, an unpermitted tattoo artist, and a plasma donation center – North Carolina

Katie Steider, MPH; Heather Dubendris, MPH

BACKGROUND: Infection prevention (IP) breaches can cause pathogen transmission from individuals or the environment. The North Carolina Division of Public Health (DPH) led three IP breach investigations in non-traditional settings during December 2016-December 2017. Although settings differed

(dental clinic, unpermitted tattoo artist, plasma donation center), the methods of investigation, intervention, control, and health communication were similar in all of these settings.

METHODS: DPH investigated IP breaches with partners using the approach described for healthcare settings by P. Patel and colleagues (AJIC, 2008). Potentially exposed individuals were identified using available exposure information. Interviews with staff and potentially exposed individuals were conducted to describe each breach including the instruments, practices, and procedures involved. When possible, DPH conducted site visits to observe practices and procedures. DPH queried the NC Electronic Disease Surveillance System for reports of bloodborne diseases among potentially exposed individuals; and the NC Immunization Registry for hepatitis B virus (HBV) vaccination status of exposed individuals. Potential source individuals were screened for bloodborne pathogens (BBP) when possible. DPH assessed the exposure risk and determined the need for notification and testing.

RESULTS: IP breaches included improper reprocessing of devices (dental clinic, tattoo artist) and IP deficiencies related to aseptic technique, hand hygiene, and environmental cleaning/disinfection (dental clinic, tattoo artist, plasma donation center). The dental clinic breach involved 25 exposed persons over one day; individuals were notified and referred for testing. The unpermitted tattoo artist exposed 18 individuals over three months; individuals were interviewed and referred for testing. DPH identified IP breaches at a plasma donation center while investigating a cluster of three acute HBV infections in donors over two months. DPH reviewed routine BBP screening records for other donors but did not recommend donor notification. All breaches posed a low risk of BBP transmission – no infections associated with the breaches were identified.

CONCLUSION: Infection prevention breach investigations can be complex and may involve multiple pathogens. While DPH uses a standard investigation approach originally described for healthcare settings, this approach can be applied to all settings. Regardless of evidence of acute disease, IP breaches pose a risk for disease transmission and should be investigated. Investigation findings should be disseminated appropriately and used to inform prevention efforts in similar settings.

Group A Streptococcus Outbreak among Residents and Employees of Two Skilled Nursing Facilities – North Carolina, 2017

Katie Steider, MPH; Tammra Morrison, RN; Jennifer MacFarquhar, RN, MPH

Background: In January 2017, the North Carolina Division of Public Health (NC DPH) was notified by a local health department (LHD) of a group A Streptococcus (GAS) outbreaks in two skilled nursing facilities (SNFs) owned by the same company.

Methods: We initiated active and retrospective surveillance for additional cases in both SNFs. We defined a case as new GAS infection or colonization identified by culture or rapid diagnostic test in a resident or symptomatic employee of either SNF with a specimen collection date on or after November 24, 2016 (SNF A) or on or after December 4, 2016 (SNF B). The LHD issued control measures to both SNFs and conducted several site visits to assess adherence. NC DPH conducted an additional site visit at both SNFs in April 2017 to assess infection prevention policies and practices.

Results: In total, 24 cases (20 residents and four employees) were identified by culture from wound (11, 46%), throat (7, 29%), blood (4, 17%), nasopharyngeal (1, 4%), and wound and throat specimens (1, 4%). Six of 20 (30%) residents died. No employees died. Isolates from 14 residents and one employee (63% of cases) were submitted to CDC for serologic testing and genomic analysis. The isolates from 13 of the residents and one employee shared the same T agglutination complex 13. Genomic sequence analysis revealed that these T13 isolates represented the globally emergent clade 3 emm89 strain and indicated close temporal relatedness of the 14 subtype emm89.0 isolates.

Identified infection prevention deficiencies were related to hand hygiene, environmental

cleaning/disinfection, and general infection control and prevention at both facilities. NC DPH and the LHD issued control measures related to these observations. Two employees worked at both SNFs and performed wound care. One of these employees was symptomatic, tested positive, and treated twice for GAS in January 2017. This employee's isolate was clade 3 emm89.0.

Conclusion: Clinical history and laboratory results suggested the symptomatic employee was a GAS carrier and individual control measures were provided. Our findings suggest that the outbreaks in both SNFs were related and the shared employee was the link between the SNFs but not necessarily the source of the outbreaks. Infection prevention deficiencies were identified at both SNFs, demonstrating the need for strict adherence to infection prevention practices, especially during direct patient care. Public health authorities should inquire as to shared employees between facilities during similar outbreaks and consider implementing individual control measures for employees who may be carriers of GAS and who perform direct patient care.

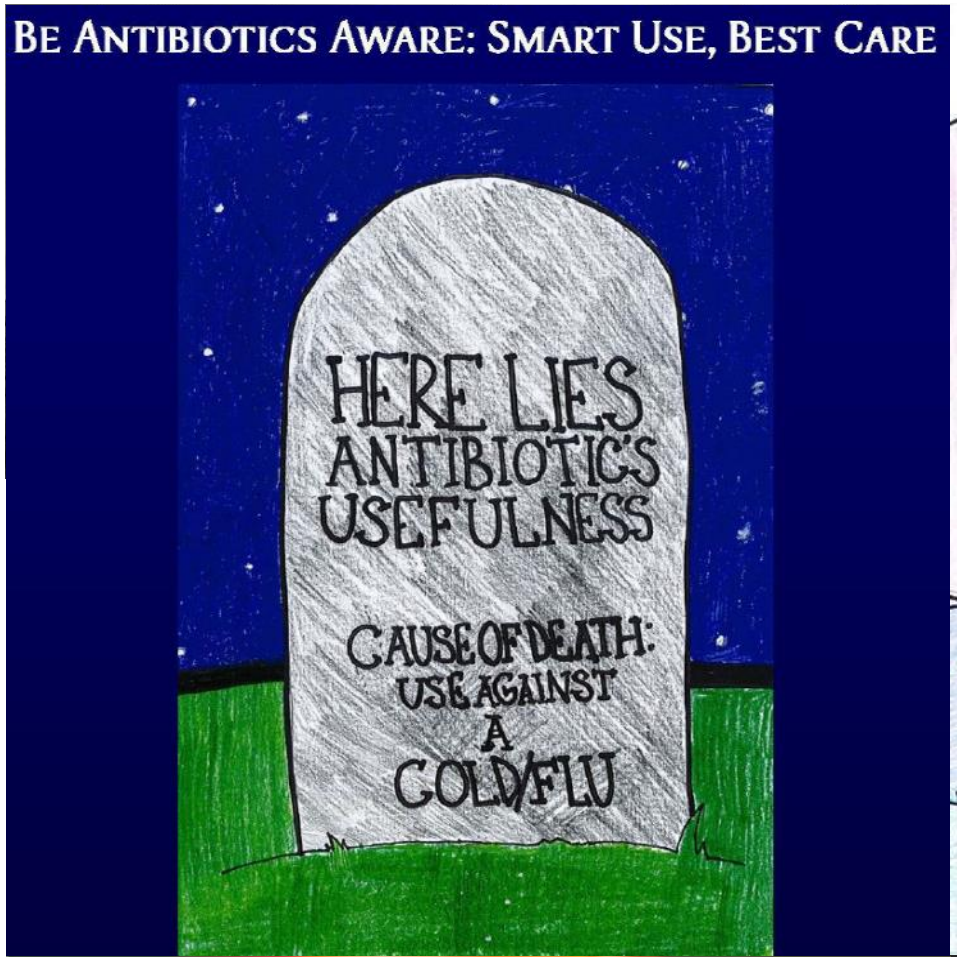
Group A Streptococcus, courtesy of CDC

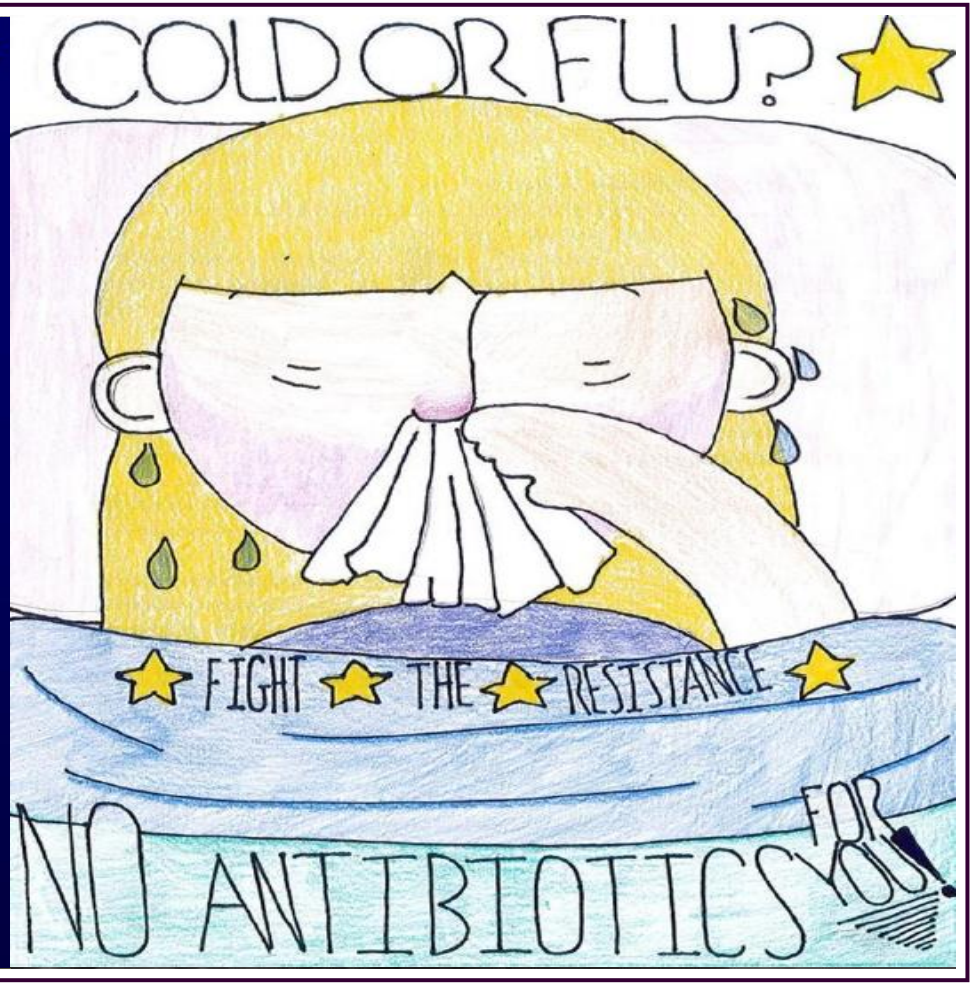
Employee of the Quarter:

Sheila Higgins, RN, MPH

Sheila has made significant contributions to accomplishing the goals of the Occupational and Environmental Epidemiology Branch (OEEB). Sheila is a Registered Nurse with a Master in Public Health from the University of North Carolina – Chapel Hill. She came to OEEB in 2003 as the Occupational Nurse Consultant and oversees the Adult Blood Level Epidemiology and Surveillance (ABLES) for North Carolina. In 2015, the Occupational Services in OEEB were fragmented and underutilized. Working with branch industrial hygienists, she helped orchestrate the creation and implementation of plans to build capacity at local health departments to respond to mold calls and to consolidate occupational health and safety services in OEEB. This process took several years to complete and Sheila organized this effort; she led stakeholder meetings and surveys, coordinated focused team meetings, assisted with management briefings, and expanded the Occupational Nurse Consultation program. Sheila demonstrated again that she is an excellent planner, and exceptional detail-oriented, and able person to see projects through to fruition. Through her exemplary efforts, OEEB now has an effective and nimble approach to conducting occupational health and safety surveillance and response work, especially for vulnerable workers throughout the state.

Sheila's dedication and perseverance kept OEEB focused and on track to develop the Occupational Services Unit. Her efforts have resulted in OEEB's improved ability to track and respond to occupational exposures including take-home lead exposures and bringing opioid awareness to occupational nursing.





2017 NC Get Smart Art Contest

The NC Get Smart Campaign celebrated Get Smart Week 2017 by hosting a children's artwork competition. Get Smart Week is a national, annual observance intended to engage healthcare providers, educational systems, and the general public about antibiotic stewardship in the outpatient, inpatient and animal health settings. Children who participated in the artwork competition created drawings and comic strips to address healthy living and appropriate antibiotic use. Out of 40 submissions from children in pre-kindergarten to 8th grade, five winners were selected and their submissions were used to create official posters for the NC Get Smart Campaign. The posters may be displayed in doctor's offices, urgent cares and school health offices across the state, and may also be viewed on our campaign webpage. The NC Get Smart Campaign will host another children's artwork competition beginning this fall. To participate in this year's competition or to order posters, email Kristin Pridgen, NC Get Smart Campaign Coordinator.

NEWS and NOTES

Epi Section updates from around the State

New Employees

The following employees have joined the Epidemiology Section

Communicable Disease Branch

Dr. James Lewis
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Pollen particles; Courtesy of EPA

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